



UNITED STATES NAVY

MEDICAL NEWS LETTER

Rear Admiral Bartholomew W. Hogan MC USN - Surgeon General
 Captain Leslie B. Marshall MC USN (RET) - Editor

Vol. 32

Friday, 3 October 1958

No. 7

TABLE OF CONTENTS

Historical Fund of the Navy Medical Department	2
Hematologic Findings after Therapeutic Doses of Gallium ⁷²	3
Aplastic Anemia	5
Empyema Complicating Pulmonary Tuberculosis	7
The Salicylate Problem	9
Use of Digoxin in Infants and Children	12
Elective Operations for Duodenal Ulcer	14
New Approach to Problem of Urinary Retention	15
Surgical Treatment of Varicose Veins and Stasis Ulcers	17
Chronic Beryllium Poisoning	20
ABC Warfare Defense - Four Weeks Course for Medical Officers	25
Nuclear Nursing Course - A Navy First	26
Naval Management and Preventive Medicine Course	27
From the Note Book	27
Length of Stay of Military Patients in Hospitals (BuMed Inst. 6010.1B) ...	30
Changes in Morbidity and Epidemiological Reports (BuMed Notice 6310) .	31
Change in Use of Poliomyelitis Vaccine (BuMed Notice 6230)	31

RESERVE SECTION

Selections for Rear Admiral	32	Submarine and Diving Medicine .	33
Increase in Retirement Pay	33		

DENTAL SECTION

Letter from Chief of Division	35	Consultant to Surgeon General ..	35
The Tooth Brush Habit	36		

PREVENTIVE MEDICINE SECTION

Fatal Accidents Among Women	36	Bats and Histoplasmosis	38
Meningitis and Mima Polymorpha .	37	Food Preparation	39
Fire Prevention Week	39		

HISTORICAL FUND

of the

NAVY MEDICAL DEPARTMENT

A committee has been formed with representation from the Medical Corps, Dental Corps, Medical Service Corps, Nurse Corps, and Hospital Corps for the purpose of creating a fund to be used for the collection and maintenance of items of historical interest to the Medical Department. Such items will include, but will not be limited to, portraits, memorials, etc., designed to perpetuate the memory of distinguished members of the Navy Medical Department. These memorials will be displayed in the Bureau of Medicine and Surgery and at the National Naval Medical Center. Medical Department officers, active and inactive, are invited to make small contributions to the fund. It is emphasized that all donations must be on a strictly voluntary basis. Funds received will be deposited in a Washington, D. C. bank to the credit of the Navy Medical Department Historical Fund, and will be expended only as approved by the Committee or its successor and for the objectives stated.

It is anticipated that an historical committee will be organized at each of our medical activities. If you desire to contribute please do so through your local historical committee or send your check direct, payable to Navy Medical Department Historical Fund, and mail to:

Treasurer, N. M. D. Historical Fund
Bureau of Medicine and Surgery (Code 14)
Department of the Navy
Washington 25, D. C.

Committee

F. P. GILMORE, Rear Admiral (MC) USN, Chairman
R. W. MALONE, Rear Admiral (DC) USN
W. C. CALKINS, Captain (MSC) USN
R. A. HOUGHTON, Captain (NC) USN
T. J. HICKEY, Secretary-Treasurer

Hematologic Findings after Therapeutic Doses of Gallium⁷²

In recent years, there has been an appreciable accumulation of data concerning the hematologic effects of external whole body radiation, but little corresponding data concerning the effects of internally administered isotopes. An opportunity to study these effects occurred when a program entailing the use of gallium⁷² (Ga⁷²) in the treatment of patients was undertaken in the Medical Department at the Brookhaven National Laboratory. The therapy was directed at metastatic or diffuse primary bone involvement by malignancy. The present report concerns hematologic observations made on patients in the course of therapy during their stay in the Brookhaven National Laboratory Research Hospital (BNLRH).

The effects of acute whole body irradiation have been summarized in a number of articles. Changes in the peripheral blood count secondary to bone marrow damage are manifest at all but the lowest doses. Data on human beings are inadequate to predict accurately the degree of effect to be expected in man. From considerations of the meager human data available, and from data on the various animal species studied, the time course of change in number of peripheral blood elements to be expected in human beings exposed to a single dose of penetrating radiation in the high sublethal range has been characterized as follows: (1) The total white count increases during the first 2 or more days then decreases below average levels. The total count then fluctuates over the next 5 or 6 weeks with no definite minimum and with some values above the pre-irradiation mean. The count becomes stabilized during the seventh or eighth week at low levels and minimum counts probably occur at this time. A definite trend upward is apparent in the ninth or tenth week; however, complete recovery may require several months or more. (2) The neutrophil count parallels the total blood count. Complete return to pre-radiation values does not occur for several months or more. The initial rise in total white count is due to a neutrophilic leukocytosis. (3) The drop in lymphocytes is early and profound. Little or no evidence of recovery may be apparent several months after exposure and return to pre-radiation levels may not occur for months or years. (4) The platelet count—unlike the fluctuating leukocyte count—falls in a regular fashion and reaches a low on the thirtieth day. Some recovery is evident early. However, as with the other elements, recovery may not be complete several months after exposure. (5) As an index of severity of exposure, particularly in the sublethal range, the total white and neutrophil counts are of limited usefulness because of wide fluctuations and because several weeks may be required for depression to become evident. The lymphocyte count is of more value in this regard, particularly in this dose range, because depression occurs within hours of exposure. However, because marked depression of the lymphocyte count occurs with low dosage and further increase in dose

produces little more depression, this index is of little value at the higher doses. (6) Platelet counts show a regular pattern of change with the same time of maximum depression in all exposure groups and with the degree of depression roughly proportional to the calculated doses. It appears that the platelet count has considerable promise in the sublethal dose ranges as a convenient and relatively easy method of determining the degree of exposure.

All patients treated were suffering from advanced malignancy; some primary in bone, most metastatic to bone from either breast or prostate. All have received conventional therapy to the limit of effectiveness before admission to the BNLRH. In all, 21 patients were treated. Because the degree of hematologic effect to be expected with this isotope was not well known, therapy was given in what were considered to be moderate doses; an interval between doses of 2 weeks was arbitrarily set in order to attempt hematologic appraisal between each dose. After it became apparent that the magnitude of hematologic depression could not be evaluated for at least 4 weeks after a dose, longer intervals were established. Of the 21 patients treated, 11 died or left the authors' care before complete hematologic appraisal was possible. In the remaining patient, despite variation in the total dose and in the dose rate, a general pattern of hematologic response was apparent even though there was considerable individual variation in response.

The cases were selected because they delineated most clearly the hematologic changes usually manifested in patients after administration of Ga^{72} . The effects of this internally administered isotope were, in general, similar to those resulting from total-body external radiation. The degree of effect was greater than anticipated from estimates of the total-body dose received from the isotope. Localization in the bone may have been responsible for this finding.

The depth and duration of platelet count depression probably represented the best indices of the degree of marrow damage after radiation and may be indicative also of the total damage sustained by the marrow from previous exposure.

The effects of large doses of radiation on the marrow appeared to be cumulative to a point of no return, beyond which regeneration may not be possible.

It was found that a total white count below 1000 and a platelet count below 25,000 could be tolerated for weeks without infection or gross bleeding and with ultimate recovery. Therapy because of these findings alone did not appear to be indicated. (Wolins, W., Bond, V.P., Hematologic Findings in Human Beings Given Therapeutic Doses of Gallium⁷², Blood, XIII: 865-872, September 1958)

* * * * *

Aplastic Anemia

Since Ehrlich's original description of aplastic anemia in 1888, many names have been applied to this type of anemia: bone marrow failure, aleukia hemorrhagica, aregenerative anemia, panmyelophthisis, marrow insufficiency, toxic paralytic anemia, progressive hypocythemia, hypoplastic anemia, refractory anemia, and adynamic anemia. The Committee for Clarification of the Nomenclature of Cells and Diseases of the Blood and Blood-Forming Organs has recommended the term "hypoplastic normocytic or macrocytic anemia, due to unknown cause." None of the suggested names is entirely satisfactory. Nomenclature of this type of anemia will probably remain unsatisfactory until more is learned about the etiology and pathologic physiology of the disorder. Meanwhile, it would seem least confusing to use the term "aplastic anemia," because it has the longest and most common usage.

Whether patients with this condition represent variations of a single disturbance or form a heterogeneous group of different entities is not clear. It is clear that this condition is an ever-recurring problem in hematology and one which some observers believe is increasing in frequency.

The peripheral blood and bone marrow of each patient were examined and in each instance there was evidence of defective blood production. A clinical diagnosis of aplastic anemia was made in every case except one in whom the diagnosis was made for the first time at autopsy. Patients were excluded from this study if they had chronic infection, malignancy, malnutrition, renal or liver disease, conditions known to depress bone marrow functions, or if they had been treated with agents, such as nitrogen mustard derivatives, urethane, and irradiation. Patients with myelofibrosis and myeloid metaplasia were also excluded. Patients who had been exposed to various toxins or drugs which do not regularly produce bone marrow depression were not excluded from this series, nor were patients excluded who had a hemolytic element as long as inadequate blood production was thought to be the predominant defect.

The most common presenting symptom was weakness. When the anemia was corrected by transfusions, many patients—especially those who had only red cell involvement—were symptom-free until the anemia recurred. Thirty-four percent of the group noted a bleeding tendency, such as epistaxis, menorrhagia, and bleeding from the gums. All of the patients with hemorrhagic manifestations had thrombocytopenia, but not all with thrombocytopenia had abnormal bleeding.

Therapeutic efforts in aplastic anemia have been mainly unsuccessful and the wide variety of therapeutic agents which have been tried with only a few scattered reports of success bears witness to the unsatisfactory status of the treatment of this disease. In addition, any evaluation of therapy is difficult in a disease with an unknown etiology and a clinical course

characterized by fairly frequent spontaneous remission. At the present time, the most effective forms of treatment are transfusions, corticosteroids, and splenectomy. It is of the utmost importance to try to elicit a history of toxic exposure and to eliminate any suspected toxin. Vitamin preparations, such as B₁₂ and folic acid, have not been effective in this type of anemia; iron therapy is not only useless, but may also be harmful.

Fifty cases of aplastic anemia varying in age from 4 to 83 years were analyzed. Toxic exposure was believed to be the etiologic agent in 7 patients; the cause was unknown in 43. Most of the patients had pancytopenia, a macrocytic anemia, relative lymphocytosis, and a hypocellular bone marrow. However, in 13, the bone marrow was normocellular or hypercellular, and 7 patients had anemia that was not associated with leukopenia or thrombocytopenia.

Although the most important factor in the anemia in these patients was deficient erythrocyte production, the presence of an associated hemolytic component manifested by increased fecal urobilinogen excretion and mild reticulocytosis was not unusual.

Exogenous hemochromatosis was found in 6 of the 14 autopsied patients. Brownish gray skin pigmentation, lymphadenopathy, hepatomegaly, and splenomegaly occurred commonly in patients who received multiple transfusions.

The prognosis was most favorable in patients with anemia alone and in those with a hypercellular bone marrow. However, an illness of long duration was not uncommon in those with pancytopenia and hypocellular bone marrow. Although 12 of the 37 patients who presented with pancytopenia died within a year, 6 lived more than 5 years and 1 survived 20 years.

A complete remission occurred in 6 patients and a partial or temporary remission in another 6 patients. Both the spontaneous remissions and those that followed corticosteroid therapy and splenectomy occurred most often in patients who had anemia alone. (Mohler, D.N., Leavell, B.S., *Aplastic Anemia - An Analysis of 50 Cases: Ann. Int. Med.*, 49: 326-358, August 1958)

* * * * *

Change of Address

Please forward requests for change of address for the News Letter to: Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.

* * * * *

Empyema Complicating Pulmonary Tuberculosis

The present study was prompted by the recent need at Manitoba Sanatorium (Ninette, Manitoba, Canada) to treat an increasing number of patients with empyema complicating pulmonary tuberculosis. It should be stated that, although resection is now the main cause of empyema, a good many cases still arise from old pneumothoraces and a few from simple extension of gross pulmonary tuberculosis. Thus, of 44 patients with empyema, the disease in 25 followed resection. Thirteen empyemas complicated pneumothorax and six were of the simple extension variety.

Tubercle bacilli were present in 25 of the 44 empyemas, but frequently were not present in pure culture; in 16 instances, other organisms, mainly staphylococci, were also present. In this series, for purposes of convenience, such "mixed" empyemas and the solely tuberculous variety are grouped under the one heading "tuberculous." In actuality, all of the 10 post-resection tuberculous empyemas were mixed as opposed to 5 of the 9 following pneumothorax, and only one of the 6 which were simple empyemas. In empyemas in which tubercle bacilli were not found, staphylococci were the predominant offending microorganisms; these empyemas have all been classified as staphylococcal.

In the present series, 10 of the 25 empyemas that followed surgical resection were classified as tuberculous and 15 as staphylococcal. In the 13 that occurred after pneumothorax, 9 were tuberculous, 4 were staphylococcal, and all of the spontaneous empyemas were tuberculous. The bacteriologic type of infection had a distinct bearing on mode of development and response to treatment of empyemas.

The purpose of the study was two fold. First, to gain a more thorough knowledge of causation in postresection empyema. Analysis of cause was limited solely to this type of empyema as being currently the most common and amenable to prevention. Second, by appraising the present empyema treatment, it was hoped to gain a clearer concept of therapeutic principles and their application, not only in treating empyema following resection, but also in the empyemas arising from other causes.

During the study period, 342 thoracotomies were performed on 322 patients. The group was analyzed in detail in a search for causative factors in postresection empyema. These were divided into basic and local factors.

Causative factors are discussed before consideration of the subject of treatment. In reviewing the literature on the etiology of empyema there seems less disagreement than difference in emphasis as to the causative factors involved. It appears that no two institutions are identical in the type of tuberculosis chosen for surgery, the surgical technique employed, and the postoperative management; the opinions formed are no doubt an expression of this experience. In the present experience, postresection empyema is a complication which develops only in patients in whom the disease has

unusual elements of chronicity. This applies to both tuberculous and staphylococcal empyema. It is believed that the explanation lies in the complexities of tuberculous pathology, well-known to all, but sometimes overlooked as a determinant of the course of clinical disease.

It must be kept in mind that tuberculosis—although tending to be a chronic disease—does pass through an earlier pathologic phase in which the disease is mainly exudative with, perhaps, some fresh cavitation. But fibrosis, pleural thickening, emphysema, and all the other manifestations of chronicity have not yet appeared. Patients who come to surgical treatment during this stage have an excellent chance of undergoing resection without developing empyema, provided they have shown good clearing of exudation and reversal of infectiousness on adequate preoperative chemotherapy, i. e., around 6 months. Many patients fall into this class.

In the opinion of the authors, the most fertile source of tuberculous empyema is transection of active tubercle-laden parenchymal disease tissue extending over lung unit borders. This occurred in 5 of the 6 tuberculous empyemas in the present series—once in wedge resection and four times in multiple resection. The hazard seems greatest in multiple resection, the need for which is most often forced upon the surgeon in dealing with so-called "salvage" or "poor-risk" cases. These patients usually are discharging drug-resistant tubercle bacilli in the sputum and have disease extending over lung unit borders. The surgeon is faced with a dilemma. Reduced breathing capacity may influence him to use multiple resection which courts disaster from empyema while conserving much needed lung tissue. Such resection at times ends badly, but on the other hand may succeed in rehabilitating an otherwise hopeless case. Perhaps the only way to avoid empyema in these cases is to deny resectional surgery and, when possible, to attempt extra-periosteal pack. Recently, this was done in some cases in the Manitoba Sanatorium and found to be safe, but the results were unimpressive.

Staphylococcal empyema appears to be on the increase with an incidence of 3.8% in the present series. For reasons stated, chronicity of tuberculous disease seems to favor staphylococcal as well as tuberculous empyema. The more frequent incidence of staphylococcal empyema in those with staphylococcal wound infection is not easily explained. In 2 patients, the pleural space was contaminated at operation by dissecting through infected chest wall tissue. In the remaining 4, no interference took place that could carry infection from the chest wall to the pleural space, or vice versa. Pleural-space hemorrhage increases the risk of empyema and blood clot favors especially the growth of the staphylococcus. However, chronic disease seems essential to this process.

It appears that tuberculous and staphylococcal empyemas have common roots of origin, namely, the pathology present in chronic pulmonary tuberculosis. The factor determining which form develops is the presence or absence of tubercle bacilli in sputum and lung tissue at the time of surgery. Residual

pleural space is a potent factor in the development of either tuberculous or staphylococcal empyema. Hemothorax predisposes in particular to staphylococcal empyema. In present-day surgery, staphylococcal empyema is a much more common complication than the tuberculous variety and was found twice as frequently in the present series.

Empyemas are classified as post-resection, tuberculous, or staphylococcal; post-pneumothorax, tuberculous, or staphylococcal; and spontaneous tuberculous. Obviously, treatment must be individualized, but each group has characteristics that reflect prognosis and act as a guide to treatment.

The extent of the chronicity in pulmonary tuberculous lesions is basically responsible for post-resection empyema, both tuberculous and staphylococcal. Transection of diseased pulmonary tissue containing drug-resistant tubercle bacilli accounts for most tuberculous empyemas that develop after present-day surgery; active endobronchial disease at the site of bronchial resection is seldom a factor.

Tuberculous chronicity also sets the stage for staphylococcal empyema because of the inherent factors of respiratory sepsis, poor drainage, and fibrosis with tissue devitalization, plus an increased potential for space problems due to impaired expansibility.

Tuberculous empyema complicating resection is uncommon since the use of long-term antimicrobial therapy. It is almost always present in patients with drug-resistant infections and is frequently intractable to treatment. The incidence of staphylococcal empyema following resection appears to be increasing. Fortunately, it responds well to treatment, and although troublesome as a complication, seldom prevents recovery.

Pneumothorax, although no longer in current use, still accounts for a sizable group of empyema patients. In the tuberculous variety, drug susceptibility is usually still present and response to treatment is good; but in the staphylococcal type of empyema, chronicity often makes the treatment difficult.

Although decortication, with or without resection, is now successful in many stubborn cases of empyema, there remains a residue of patients who respond only to Schede thoracoplasty. (Paine, A. L., Zajcew, W., *Empyema Complicating Pulmonary Tuberculosis: Am. Rev. Tuberc.*, 78: 411-424, September 1958)

* * * * *

The Salicylate Problem

Because of a report of the recent death of three children from accidental ingestion of methyl salicylate (wintergreen oil), it is timely to discuss the problem of salicylate intoxication. Poisoning from all salicylates is a serious health problem in children. In 1956, 18% of all accidental poisoning

deaths in children under 5 years of age were due to salicylates. Salicylates were second only to petroleum products as the main cause of accidental poisoning death in this age group.

Jacobziner, reporting on 454 cases of poisoning in children under 16 years of age, found that salicylates accounted for 16.5% of the cases. Of 3926 accidental ingestions reported by 29 poison control centers in the eastern and midwestern United States, 25% were caused by accidental ingestion of salicylates. Widespread use of acetylsalicylic acid, extreme toxicity of methyl salicylate, and the public's unawareness of the toxicity of these substances are probably the main reasons for the extent of the problem.

Such factors as the pleasant odor and the high concentration of salicylate make methyl salicylate an especially hazardous substance to children. A teaspoon of wintergreen oil contains 45 gr. of salicylate, an amount which may be fatal in children.

Although methyl salicylate is hydrolyzed in the stomach to form methyl alcohol and salicylic acid, it is doubtful that the methyl alcohol formed contributes to the intoxication. Wintergreen oil poisoning is primarily a salicylate poisoning caused by ingestion of a substance containing about 90% salicylate; the toxic manifestations which result are identical to those of poisoning from salicylates.

The public should be advised of the toxicity and lethal potential of wintergreen oil. Proper labeling is apparently not enough. The advice to call a physician at once in the event of an accidental ingestion of a toxic or potentially toxic substance cannot be overemphasized (especially when the ingested substance is methyl salicylate).

When a child has accidentally ingested a salicylate product, treatment should be started as soon as possible. In all cases, the stomach must be emptied promptly. Mild intoxication can often be remedied by this procedure. If gastric lavage is performed, sodium bicarbonate should not be used because it enhances salicylate absorption from the gastrointestinal tract. Methyl salicylate delays stomach emptying; gastric lavage may, therefore, be carried out as long as 4 to 6 hours after its ingestion.

Some physicians advise hospitalization of most cases of salicylate ingestion whether or not symptoms have occurred—if only for overnight observation. Such practice emphasizes the necessity of prompt vigorous therapy and close observation in all instances of salicylate overdosage. In methyl salicylate poisoning, the usual asymptomatic period following ingestion makes prolonged close observation mandatory.

With the introduction of flavored aspirin tablets, the incidence of salicylate poisoning in children has probably increased, but reports from poison control centers indicate that unflavored aspirin tablets still account for many cases of salicylate poisoning.

Rational management of salicylate poisoning is based on a thorough understanding of the pathophysiology induced by the salicylates. Until

recently, there has been some confusion as to the acid-base disturbances occurring in acute salicylism. However, if one follows the pH of the blood, it is quite obvious that an alkalosis occurs initially. Salicylate stimulation of the respiratory center produces hyperpnea resulting in a carbon dioxide deficit. Renal compensation by bicarbonate excretion facilitates the development of acidosis. Salicylates affect carbohydrate metabolism.

The hypoprothrombinemic effect of salicylates is well known. The plasma fibrinogen may become depressed and widespread capillary damage may also result from salicylate intoxication.

Vomiting followed by hyperpnea is most frequently seen in acute salicylism. Hyperpyrexia, sweating, convulsions, delirium, or coma may also ensue. Elevated blood salicylate concentrations support the diagnosis, but low blood concentrations do not rule out the diagnosis. Severe intoxication in patients with low salicylate blood levels has been reported not uncommonly. Thus, the diagnosis is made on a clinical basis.

The treatment of established salicylate intoxication consists of giving fluids intravenously (orally in mild cases) to correct the existing water deficit, and maintain adequate urinary output; glucose may be of value in combating ketosis and should be given. During the early alkalotic stage, hypotonic saline solutions may be given; base therapy during this stage may lead to tetany, convulsions, and death. Only after acidosis supervenes (usually 6 to 8 hours after toxic signs and symptoms have appeared) should base (sodium bicarbonate or sodium lactate) be administered. There are some, however, who believe that administration of sodium bicarbonate is not harmful even when given early in the course of the development of symptoms. It has been shown that the renal clearance of free salicylate is increased in the presence of an alkaline urine. Thus, correction of the acidosis and increased excretion of salicylate result from base administration. However, the base must be administered cautiously and in small doses. Attempts at rapid correction of the acidosis may result in alkalosis.

Vitamin K adequately deals with hypoprothrombinemia. Ascorbic acid may be of value for any capillary damage that occurs. Barbiturates, paraldehyde, and morphine are contraindicated. A synergistic effect has been demonstrated between these drugs and salicylates resulting in central nervous system depression. If convulsions occur, oxygen administration may be of some help. Tetany is best treated by intravenous calcium gluconate. Hemodialysis has been used for treating acute salicylism.

Although it has been shown that salicylates are bound to plasma proteins, good clinical results have been obtained with hemodialysis. Furthermore, in vitro dialysis demonstrates that salicylic acid is cleared from both saline and plasma at almost the same rate.

Prevention is much preferred to treatment, but where ingestion has occurred, prompt emptying of the stomach and observation are indicated, as is early institution of therapy in established cases of acute salicylism.

Any ingestion of methyl salicylate should be considered a medical emergency because it is so toxic. Wintergreen oil delays stomach emptying; thus, gastric lavage may be used effectively up to 6 hours following ingestion and should be performed. The lack of symptoms following ingestion does not necessarily indicate a favorable prognosis. After emptying the stomach, the patient should be closely observed for the next 24 hours. In severe cases of salicylism, the use of the artificial kidney or exchange transfusion should be considered. It is hoped that in following these principles, the morbidity and mortality from salicylates may be significantly reduced. (Cann, H. M., Verhulst, H. L., M. S., The Salicylate Problem with Special Reference to Methyl Salicylate: J. Pediat., 53: 271-276, September 1958)

* * * * *

The Use of Digoxin in Infants and Children

Since the introduction of digoxin in a dilute solution for oral use, administration of accurate small doses to infants and children has been possible. The following observations were made during the treatment of 86 children with digoxin at the Sharon Cardiovascular Unit and on the general medical wards of the Children's Medical Center, Boston. Reported are the results of therapy, the toxicity encountered, and the dosages which proved effective.

Digoxin—a derivative of digitalis lanata—is a purified glycoside which may be administered by the oral or parenteral route. The onset of action of the drug is moderately rapid with maximal effect within 6 to 8 hours after oral administration and within 2 hours after intravenous injection. Recently, a new parenteral preparation has become available. This is a solution of digoxin in 40% propylene glycol and 10% ethyl alcohol. It can be used without dilution and given intravenously or intramuscularly without local tissue damage. The fairly rapid rate of elimination of digoxin is one of its principal advantages for, if toxicity occurs, it is not as long lasting as with digitoxin or digitalis leaf. Investigators have reported toxicity as fleeting as a few hours and no longer than 24 to 48 hours. An appraisal of the rate of dissipation of the drug was made by Batterman and DeGraff who found that 3 days after discontinuing digoxin, 87% of the initial dose was gone. Slight depression in cardiac rate, however, has been reported as long as 7 days after a single digitalizing dose.

Eighty-six children suffering from congestive failure or an arrhythmia were treated with digoxin. Three of the patients were digitalized a second time after the drug had been discontinued; this resulted in a total of 89 courses of digitalization. The group included 48 males and 38 females ranging in age from newborn to 15 years.

Among the patients with congestive failure, congenital heart disease was the most common form of cardiac abnormality; the acyanotic variety

was found more frequently than the cyanotic type. Myocardial disease with failure was diagnosed in 7 children. Three of these were proved to have endocardial fibroelastosis, while 4 were classified as "primary myocardial disease." Congestive failure was also observed in 4 children who had neoplastic disease with involvement of the pleura or pericardium and profound anemia, as well as in 2 patients with protracted renal disease, hypertension, and severe anemia.

Arrhythmias occurred in 11 other children. Six had paroxysmal atrial tachycardia; 3 had atrial flutter with varying atrioventricular block; and 2 had long-standing atrial tachycardia. The last 2 patients had congestive failure as well.

The indications for treatment with digoxin were congestive failure alone in 75 children, an arrhythmia alone in 9, and an arrhythmia with failure in 2 patients.

In this series, children with congestive failure and arrhythmias responded variably to the administration of digoxin. On the whole, the cyanotic group responded least well and the patients with paroxysmal atrial tachycardia responded best. Although congestive failure was often marked and the underlying heart disease severe—especially in the cyanotic infant group—the judicious use of digoxin in increasing amounts produced considerable amelioration of symptoms in many. In some cases, particularly in the unusual arrhythmias, no adequate therapeutic effect could be achieved without producing toxicity.

The most helpful index of digitalis toxicity was the electrocardiogram. Among the electrocardiographic signs of toxicity, atrioventricular conduction disturbances, sinoatrial node depression, and supraventricular arrhythmias were common, in contrast to the ventricular ectopic beats which are found more frequently in adults. In light of the authors' experience and that of others, it seems wise to recommend that signs of digitalis toxicity be particularly sought in patients in whom body potassium may be changing.

The authors emphasize their belief that, although most children may be digitalized and maintained on a relatively set schedule depending on age and weight, the great variation in response requires individualization of dosage and that digoxin should be administered until therapeutic effects are achieved or toxicity appears.

The results obtained with oral digoxin are generally comparable to those observed in a previous study with digitoxin. However, the authors believe that the fairly rapid elimination of digoxin and the consequent short duration of toxicity permitted them to use it more liberally. In some cases, cautious yet rapidly progressive increases in digoxin produced prompt improvement. With a longer acting preparation, such a procedure would have been slower and might have been more dangerous. Vomiting was found to be more prevalent in the children on digoxin, but this was not a major factor in management and, therefore, was considered only a slight disadvantage as compared to those of digitoxin. The second disadvantage—that of losing all

effect of digoxin if it is inadvertently discontinued at home—proved negligible in this study. The authors believe that careful instruction of parents was fruitful in avoiding this. (Hauck, A. J., Ongley, P. A., Nadas, A. S., The Use of Digoxin in Infants and Children: Am. Heart J., 56: 443-456, September 1958)

* * * * *

Elective Operations for Duodenal Ulcer

A survey sponsored by the Ohio Chapter of the American College of Surgeons had four objectives: (1) to determine what operations Ohio surgeons are using electively for chronic duodenal ulcer; (2) to determine what the mortality is for these operations; (3) to determine, if possible, the formal qualifications of the surgeons performing these operations; and (4) to find out what procedures are being utilized in acute perforation of duodenal ulcer and the mortality.

Data were obtained from forty-two investigators reporting from 29 hospitals in 15 Ohio communities. The hospitals range in size from 147 to 842 beds and are situated in communities ranging in population from 15,000 to 1 million people. They are both open and closed staff hospitals and include N. P. A. (Non Profit Association), church, and university hospitals.

Rigidly excluded from the study were such conditions as gastric ulcer, jejunal ulcer, and hypertrophic pyloric stenosis. Also excluded from the study on elective operations were any emergency or urgent procedures, such as those performed for continuing hemorrhage or acute perforation. An operative fatality was any death occurring within 30 days of operation.

Four hundred and thirty-two surgeons performed 2562 elective operations of which there were 110 deaths or a mortality of 4.3%. In this figure of 432, there is some unavoidable overlapping because a few surgeons may have operated in more than one participating hospital. It is believed that this overlapping does not involve many surgeons. In 19 hospitals in which data were available, it was found that 23% of the surgeons operating were not Board certified, were not Fellows of the American College of Surgeons, or were not residents in training. Those surgeons who may be regarded as having no formal qualification performed 11% of the operations in those hospitals. Some of those surgeons without formal qualification were Board eligible.

The operations were divided into two groups on the basis of those involving resection and those in which no resection was performed. In nearly all of the patients in the second group, a drainage procedure was performed. About 80% of the patients had gastric resection. In about 30% of all the procedures including both drainage procedures and resections there were supplementary vagotomies. Whereas the over all mortality for all procedures

was 4.3%; for resection it was 4.9%; and for drainage procedures it was 1.7%. The range in mortality for individual hospitals varied from zero in 2 hospitals to a high of 7.8%. Nine hospitals had death rates of 6% or greater; 11 hospitals had rates of 3% or less. One of the 2 hospitals reporting no deaths was a small community hospital with a total series of 41 cases.

In a little less than one-half of the 102 deaths for which data were furnished, the cause of death appeared to be directly related to the operation and included such complications as peritonitis, hemorrhage, and shock. A little less than half the deaths were ascribed to complications not directly related to the operation itself, such as myocardial infarct and pneumonia. About 10% of the deaths were due to such causes as acute hemorrhagic pancreatitis or enterocolitis in which a clear relationship to the surgery is also difficult to establish. This same ratio held true for the few deaths following drainage procedures as well as resections.

According to the present survey, Ohio surgeons prefer the moderate gastric resection (50 to 75% of the stomach removed) as the elective operation for chronic duodenal ulcer.

There were 110 deaths among the 2562 patients having elective operations for chronic duodenal ulcer, a mortality of 4.3%. Of the 2562 patients, 80% had some type of resection including 17% who had accompanying vagotomy; the mortality in this group was 4.9%. Of the 20% who had a drainage operation, such as gastrojejunostomy or pyloroplasty, the mortality was 1.7%. Seventy percent of these patients had supplementary vagotomy.

Twenty-three percent of the 432 surgeons taking part in the operations were not certified by the American Board of Surgery, were not Fellows of the American College of Surgeons, or were not residents in training; they performed 11% of the operations in the series.

In analyzing the reasons for a high mortality, the most likely cause seemed to be the intrinsic risk in performing gastric resection for duodenal ulcer. (S.O. Hoerr, M.D., Chairman, Survey Committee, Ohio Chapter, American College of Surgeons, Elective Operations Performed for Duodenal Ulcer with Their Mortality - Results of a Survey in Selected Ohio Hospitals: Am. J. Surg., 96: 365-368, September 1958)

* * * * *

New Approach to Problem of Urinary Retention

A study has been made of the problem of urinary retention following abdominoperineal resection for carcinoma of the rectum. In the present article, a new approach to the problem is proposed as well as more radical surgery when carcinoma of the rectum overlies or is attached to the prostate or seminal vesicles.

The most common urologic complications following abdominoperineal resection for carcinoma of the rectum are inability to void and residual urine. There are two principal types of postoperative vesical dysfunction. The first is primarily neurogenic and is produced by wide pelvic dissection with associated severance and trauma to bladder innervation. This type is relatively uncommon, occurring in less than 5% of the patients. The second and most common vesical dysfunction results from a combination of factors: postoperative distention, benign prostatic hypertrophy, trauma to local tissues with associated pericystitis, trauma to nerves, and prolapse of the bladder into the pelvis. Prolapse of the bladder accentuates the angulation of the prostatic urethra to the bladder neck and may form an obstructing median bar. Preoperative, asymptomatic, mild vesical neck obstruction (benign prostatic hyperplasia, median bar, or vesical neck contracture) may become very significant when associated with the operative trauma to nerves, tissues, and pelvic prolapse of the bladder.

The records of 62 males who had abdominoperineal resection for carcinoma of the rectum were reviewed. All except 3 were men over 50 years of age. Eighteen percent of the patients studied had a prostatectomy. One was performed prior to, the remaining following, abdominoperineal resection. In this group, one had a perineal prostatectomy, the remainder had transurethral resection. The necessity for prostatectomy was realized preoperatively in only one case. All others had several episodes of postoperative acute urinary retention before prostatectomy was decided upon.

How can one anticipate difficulty or predict the need for prostatectomy preoperatively? The answer is simple—systematic urologic evaluation. The urologic history with reference to frequency, nocturia, hesitancy, and decrease in size and force of the urinary stream is essential. A careful rectal examination with attention to the size of the prostate as well as to the rectal tumor must be performed. A record should be available of residual urine, cystoscopy, panendoscopy, and intravenous urogram. It seems needless to record these basic procedures; however, in this series 66%, or 40 patients, had a history, rectal findings, or both, indicating prostatic obstruction. Only 1 of these patients had preoperative catheterization for residual urine. Only 43%, or 16 patients, had preoperative cystoscopy and only a fraction of this number had panendoscopy. If these cases had been evaluated as outlined, planned prostatectomy would have been performed in more cases and, thus, postoperative urinary complications would have been avoided.

A few patients will have postoperative vesical complications in spite of good preoperative evaluation. In some, primary neurogenic dysfunction will develop and in a small number, bladder difficulties will develop because of presumed insignificant vesical neck obstruction. In this group, the "insignificant obstruction" associated with operative trauma to nerve tissue and pelvic prolapse of bladder becomes significant.

The authors believe that patients with a history and diagnostic evidence of prostatic obstruction should have perineal enucleation of the prostatic

adenoma at the time of combined resection. Such a procedure adds only 15 to 20 minutes operative time and does not significantly increase morbidity. This treatment has been successfully accomplished in several instances at the Massachusetts General Hospital. Because of significant (18%) prostatic obstruction following abdominoperineal resection in a 5-year period at this hospital, simple perineal enucleation of the prostate is preferred at the time of the combined resection in patients with significant prostatic enlargement. This procedure is not a total prostatectomy requiring vesico-urethral anastomosis, but a simple prostatotomy, enucleation of the prostatic adenoma, and a careful watertight enclosure of the small prostatotomy incision. The authors believe that this procedure may result in fewer postoperative urinary complications and reduce the necessity for further urologic operations.

Local recurrences of carcinoma of the rectum regardless of the location of the carcinoma involve the prostate, bladder, and/or seminal vesicle in at least 10 to 15% of the operable patients. Forty to fifty percent of all patients with carcinoma of the rectum showed recurrences in these areas at postmortem. Partial excision or shaving of the posterior prostatic tissues to remove adherent tumor is strongly condemned because of possible slough and fistula formation. Total prostatectomy and seminal vesiculectomy are proposed only when the carcinoma is over, near, or attached to, the prostate or seminal vesicles. The authors believe that this procedure can lessen recurrence of carcinoma in these areas and will certainly eliminate postoperative urinary obstruction. To avoid complications, careful and skilled technique is required to perform this operation. If it is done carefully, no undue complications should occur. (Leadbetter, G.W. Jr., Leadbetter, W.F., A New Approach to the Problem of Urinary Retention Following Abdominoperineal Resection for Carcinoma of the Rectum: Surg. Gynec. & Obst., 107: 333-338, September 1958)

* * * * *

Surgical Treatment of Varicose Veins and Stasis Ulcers

Varicose veins and stasis ulcers are common problems that face the busy practitioner daily and demand much time and effort in their treatment. At times, they become important causes of chronic disability. Prompt and efficient treatment will often prevent loss of time and income by the afflicted patient.

Both conditions are manifestations of chronic venous insufficiency of the lower extremity, but they seldom occur together except in association with deep venous insufficiency (commonly termed the "post-phlebotic leg").

Stasis ulcer is rarely a complication from primary varicose veins alone, but nearly always a complication from deep venous insufficiency. Secondary varicose veins frequently develop in the postphlebotic leg and

then become an important predisposing factor for a stasis ulcer. The treatment of varicose veins and of stasis ulcers is discussed separately for the sake of clarity. For adequate understanding of chronic venous insufficiency and its complications, a basic knowledge of the anatomy and physiology of the venous system in the lower extremity is essential.

Every patient with varicose veins should be examined carefully for evidence of any systemic disease or contraindicatory condition before surgical treatment of the veins is advised. Close examination of the lower extremities will reveal much of the information necessary for the evaluation of the venous function. Varicose veins with large tortuous tributaries are usually detected without difficulty. Deep venous insufficiency is many times manifested by stasis changes in the distal third of the leg and ankle that may include edema, stasis cyanosis of the skin, and induration or stasis ulcer. An ancient iliofemoral phlebitis often leaves residual dilated and tortuous veins in the suprapubic and lower abdominal areas. With primary varicose veins, the breakdown usually begins above at the groin and spreads gradually downward, whereas with secondary varicose veins, the process begins below at the ankle and, with time, spreads upward. Incompetent perforators are found associated with large fascial defects and venous bulbs. In the differential diagnosis of varicose veins, such conditions as prominent normal superficial veins, dilated collateral superficial veins with associated deep venous insufficiency, and congenital anomalies, such as cavernous hemangiomas or arteriovenous fistulas should be considered. At times, a large sacculated varix in the groin might be confused with a femoral hernia, or a venous aneurysm in the popliteal space with Baker's cyst.

Two simple clinical tests are helpful in making the diagnosis of incompetent superficial veins. The compression test, done with the patient standing, is used in tracing the course of the superficial veins and in detecting incompetent valves. If an impact can be transmitted downward by the compressing fingers of one hand to the palpating fingers of the other hand below (arbitrarily over a distance at least 20 cm.), the intervening vein is incompetent. In normal veins, the competent valves would block and prevent the downward transmission of such an impact. The retrograde filling test (Brodie-Trendelenburg) demonstrates and confirms the presence of incompetent superficial veins by the retrograde filling of the empty veins on release of the tourniquet. In the use of this test for greater saphenous incompetency, the tourniquet is applied above knee-level after the veins have been emptied by elevation of the extremity and is released after the patient has been standing for 20 seconds. The two tests are likewise applicable to lesser as well as greater saphenous veins, except that the transmission of the downward impact and the retrograde filling originate from the popliteal space instead of from the groin. When the superficial veins are thrombosed, are sclerosed, or lack elastic walls, these tests are much more difficult to use and interpret. The examiner may then have to be guided by such factors

as the size of the varicosities, their anatomic relationship to stasis changes, their symptoms, and past treatments.

Incompetent perforators must be suspected whenever a large fascial defect can be palpated and it is associated with a venous bulb. When large, they show retrograde filling after release of compression by the examiner's finger. It is most important not to overlook them as they are important factors in recurrence if not removed. The sites at which they may occur follow a regular anatomic pattern.

The aim of surgical treatment is to improve the already impaired venous function in the lower extremity and to prevent possible stasis complications from chronic venous insufficiency.

To date, the author has carried out approximately 7000 stripping operations at the Mayo Clinic. Observations during the past 9 years led to his conviction that this is the procedure of choice in the surgical management of varicose veins. It must be emphasized, however, that complete removal of all incompetent superficial veins and perforators is essential for a long-term satisfactory result.

In general, the treatment of a stasis ulcer depends on its size and its association with incompetent veins. The lesion must be differentiated from ischemic ulcer, traumatic ulcer, and inflammatory ulcer because the treatment and course vary with the condition. A small stasis ulcer will heal spontaneously in a brief time if the leg is elevated in bed or if the patient wears proper support, such as the elastoplast boot. A large ulcer will require too much time and, therefore, should be skin grafted. A split-thickness skin graft takes well, provided the bed of the ulcer is clean, the granulations healthy and the local blood supply adequate. Many times, an incompetent perforator is situated just above the ulcer. If incompetent perforators or superficial veins are present, they are removed during the same operation prior to skin grafting.

After the edges and exuberant granulations have been carefully excised and after a perfectly dry field has been obtained, the split-thickness graft is applied over the ulcer and held in place with a moist pressure dressing. Thrombin solution is often helpful in stopping any capillary oozing from the ulcer bed. The underlying deep fascia is not excised. Sutures are not necessary to hold the graft in position. The graft is usually obtained from the anterior aspect of the thigh with an electrodermatome. In order for the graft to take firmly, the patient is kept in bed for a minimum of two weeks.

Because chronic deep venous insufficiency is almost always associated with the stasis ulcer, adequate elastic support must be applied to the leg and maintained whenever the patient is up. A foam-rubber pad and two heavy elastic ace bandages have been found satisfactory in severe cases of deep venous insufficiency, while a heavy elastic stocking has been found adequate in milder cases. Periodic elevation of the legs, as well as adequate support,

helps prevent the edema which otherwise interferes with the local blood supply and nutrition, and thus predisposes to recurrence of the ulcer.

The combination of skin grafting, complete removal of all incompetent superficial veins and perforators, and application of adequate elastic support have been effective in the management of large stasis ulcers. (Lofgren, K.A., Surgical Treatment of Varicose Veins and Stasis Ulcers: GP, XVIII: 121-126, September 1958)

* * * * *

Chronic Beryllium Poisoning

The following excerpt presents a comprehensive description, discussion, and treatment of a case of chronic beryllium poisoning.

Case Report

The patient, an unmarried woman, was born in 1910 and was first seen in October 1955 because of a chronic cough and finger clubbing. She left school at 14 years and was employed as a baker for 5 years. She had to leave this work as her skin became sensitized and for the next 11 years remained at home. The patient then began clerical work in a tailoring store. This was interrupted from June 1943 until May 1945 when she worked in a factory making fluorescent lamps. At the time, zinc beryllium silicate phosphors in high concentration were used in the manufacture of these lamps. The patient's work consisted of placing the tubes on horizontal metal rollers. The solution containing beryllium was baked on the inner surface of the tubes and, after cooking, the tubes were removed from the oven and about 2 in. of deposit was extracted from each end of the tube with a rubber-padded brush. Very little dust was released in the process as the ends of the tube were enclosed in a box covering. Tubes were broken from time to time and the patient received some small lacerations from these. During the whole of this period, she felt quite well and no medical or radiological examination was made.

In 1945, the patient went to live in a small town far removed from that in which she did her factory work. She started clerical work again and continues at this occupation.

A few years later, a gradual deterioration in her health was noticeable and she was unable to take long country walks because of shortness of breath. In 1950, an unproductive cough and vague chest pains developed and clubbing of the fingers was first observed by the patient. During the next 5 years, the cough became more severe but remained unproductive. It was continuous throughout the year, although worse in the winter months and more marked during the day than at night. The chest pain

was situated deep to the lower sternum and in the left inframammary region radiating to the left scapula. It was dull and prolonged in character, occurring both at rest and during activity; it became increasingly severe. The patient lost a great deal of weight during this period. A poor appetite and general malaise were marked only during the previous 12 months. There was no hemoptysis, sweating, vomiting, or diarrhea. No relevant past history or family history was obtained.

The patient was alert, active, and cheerful with a tendency to minimize her symptoms. Her height was 4 ft., 9 in. and weight 88 lbs. There was moderate clubbing of the fingers and toes. There was no cyanosis, but tachypnea was present at rest. Chest expansion measured 1 inch. The percussion note was resonant. The breath sounds were vesicular and of equal intensity over both lungs. Persistent rales and occasional coarse rhonchi were also audible over both lung bases.

The heart was normal except for accentuation of the pulmonary component of the second sound. The tip of the spleen could be felt on full inspiration. The liver was not enlarged, but the epitrochlear and axillary lymph nodes were slightly enlarged. The tibiae were considerably bowed from old rickets.

Small scars were present on the extensor surface of the left forearm, over the right knee, and both ankles. They measured 1/2 to 1 in. in length and were flat or slightly depressed and reddish purple. They were the result of trivial cuts from broken fluorescent tubes and had existed unchanged for at least 10 years.

A chest radiograph showed patchy dense shadowing throughout both lung fields obscuring the vascular pattern. There appeared to be a background of diffuse coarse nodular shadows as well as areas of massive fibrosis. Radiological examination of the hands was normal.

The Mantoux test was negative to 10 T. U. of old tuberculin. White cells numbered 11,000 per c. mm. (polymorphonuclears 56%, eosinophils 2%, lymphocytes 32%, monocytes 10%). The sedimentation rate (Wintrobe) was 3 mm. in the first hour. Acid phosphatase 3 K. -A. units, inorganic phosphate (as P) 3 mg. per 100 ml.; plasma proteins 6.8 g. (albumin 4.9 g., globulin 1.9 g.) per 100 ml. Blood Wassermann and Kahn tests were negative. The electrocardiogram was normal.

Repeated examinations of the sputum for tubercle bacilli were negative. The organisms in the sputum were scanty and those predominating were non-hemolytic streptococci, *N. catarrhalis*, and yeasts. No beryllium was detected spectroscopically in a 24-hour specimen of urine.

Patch tests were performed with a 1% solution of beryllium sulphate and a 1% solution of beryllium nitrate. A square of ribbon gauze moistened with one of the solutions was applied to the skin. A similar square moistened with the other solution was applied about 1-1/2 in. distant. The two squares were then covered with cellophane which was held in

position by adhesive strapping. At the end of 48 hours, the strapping was removed. There was a marked reaction to each solution in the form of an area of papules and vesicles with mild erythema. The two areas were almost confluent. The eczematous reaction subsided after 14 days and eventually left small superficial scars.

Studies of respiratory function supported the clinical and radiological concept of a severe degree of diffuse pulmonary fibrosis. The vital capacity measured only 1000 ml. (44% of predicted vital capacity). The total lung volume was 3500 ml. of which 70% was residual air (2460 ml.). The maximum ventilatory capacity performed at 45 breaths per minute was 32 liters (50% of predicted volume). Spirograms of forced inspiratory and expiratory phases of respiration showed moderate reduction in the rate of air flow, but there was no evidence of air trapping. The mixing efficiency of the lungs was slightly impaired. The oxygen saturation of resting arterial blood was 89%. No demonstrable change occurred during moderate exercise, but 100% saturation was obtained with oxygen inhalation. The carbon dioxide tension of arterial blood was normal and the pH was 7.41.

The lesion on the left forearm was excised. Microscopically, the section revealed some thinning of the epidermis with a little increase in keratin. Several well-defined granulomata were present in the corium and some of these showed small areas of central necrosis. A few contained multinucleated giant cells. The lesions were surrounded by lymphocytes and separated by loose fibrous tissue. No tubercle bacilli were demonstrated and there were no birefringent crystals. The picture was that of an active granulomatous lesion with some resemblance to that seen in sarcoidosis.

Discussion

Chronic beryllium poisoning is a remarkable condition in that there appears to be no direct relationship between the degree of exposure to beryllium compounds and the incidence of the disease. American reports have shown that when a large number of individuals are apparently exposed to the same hazard, only a small proportion actually develop lesions which have the microscopical character of the condition. Spectroscopic examinations of the urine of such workers in contact with beryllium salts have demonstrated the excretion of beryllium at the time of, and for some period after, exposure without any subsequent manifestation of the disease. In addition, there are records of patients who showed the classical picture of chronic beryllium poisoning without any direct or close exposure to the fumes. Such patients include those who lived at a considerable distance from the factory where beryllium was being used (neighborhood cases) and those whose only exposure was that due to direct contact from washing the linen of employees at the factory. Agate (1948) observed that it is the patient

with unusual susceptibility rather than the worker with long exposure who develops the disease.

Unfortunately, the smallest amount which may be toxic for any one individual is still uncertain, but is probably minute. The duration of exposure which might be termed "safe" is also unknown.

It is generally assumed that inhalation of dust or fumes causes the systemic disease and that the subcutaneous granulomata are of traumatic origin. Sneddon's case (1955) which occurred in a worker who was employed solely in shearing strips of beryllium copper does not support this view, for in this instance, the production of dust was negligible. Furthermore, it is clear that all skin lesions do not necessarily occur at the site of known previous injury; the granulomata may erupt spontaneously alongside more definite linear lesions due to old lacerations. Although the lungs are normally the route by which beryllium enters the body, it is also possible that the skin may provide an adequate pathway on occasion.

Numerous descriptions of individual cases and wider surveys of all workers exposed to the same hazard and followed carefully over a long period have enabled a general picture to be pieced together. An analysis of all these reports indicates that the chronic form of beryllium poisoning should be regarded as a generalized disease in which the lungs and skin bear the brunt of the damage. Collected postmortem studies, however, have established that lesions may occur also in the liver, spleen, kidneys, myocardium, pleura, and lymph nodes. Laboratory studies have shown disturbances in nitrogen and calcium metabolism and an increase in serum protein with a relative increase in gamma globulin.

Because the pulmonary and skin manifestations of the chronic disease may be mimicked by a number of unrelated disorders—particularly sarcoidosis—it is important to establish strict criteria for the diagnosis of the disease. Accepted cases must have a history of exposure to beryllium. Occasionally, such a hazard may not at first be apparent if the patient has not been directly engaged in work involving the metal or if after exposure he has moved some distance to a part of the country where no form of industrial work is carried out. It is desirable to have evidence that the beryllium has entered the body; for this, spectroscopic examination of the urine or of affected tissues may be helpful. Even if proof of entry is established, the subject may not be suffering from beryllium poisoning for this depends essentially upon an abnormal reaction to beryllium. The existence of an abnormal response is suggested if the lesions of the skin and lungs or elsewhere in the body show the characteristic features of a granuloma on microscopy. Confirmation is obtained if there is a marked reaction to the patch testing of the skin with weak solutions of beryllium salts. The great value of this test is that it shows that the subject has become sensitized to the metal.

Curtis introduced the skin test in 1951 and his report has been followed by others (DeNardi and others, 1953; Van Ordstrand, 1954) which has confirmed

the specificity of the skin patch test. This claim is also supported by Sneddon (1955) who referred to investigators in this country who have made the test on a large number of patients—including cases of sarcoidosis—without obtaining a false positive result. Sneddon also observed that biopsy of the skin lesion resulting from the patch test a few weeks after it was performed reveals histological features of a sarcoid-like reaction.

Some critics of the test (Hardy 1956) state that as beryllium is known to be a skin sensitizer there must be some doubt as to the specificity in workers known to have been exposed to airborne beryllium compounds. This objection would be valid if examples of a positive reaction in such workers not suffering from beryllium poisoning were to be found; so far none has been recorded.

A more serious criticism of the procedure is that it is liable to provoke a violent reaction in the lungs. It is probable that such an event did occur in Sneddon's case. For this reason, it is imperative to use only a dilute solution of the salts for the tests. It may be remarked that no small advantage of the test is the ease of performance.

The natural evolution of the disease is variable, but the usual course is one of progressive pulmonary fibrosis leading to death from respiratory or cardiac failure. It is possible that in a few cases cure will be spontaneous. The outlook will depend upon the stage of the disease when it is first recognized, but once extensive and irreversible fibrosis has been established in the lungs, the ultimate prognosis is grave.

Treatment

The first step is to remove the patient from all possible contact with any form of beryllium. It is well recognized that in hypersensitive states even the slightest exposure may result in a violent reaction and exacerbation of symptoms. In view of the knowledge that beryllium may be deposited in a variety of tissues—including the bones—and perhaps be released from these structures from time to time, many attempts have been made to find an agent which can eliminate all traces of the compound from the body, or one that renders such compounds inert by procuring their chemical combination with some other innocuous substance. Dimercaprol and other agents have been employed without benefit.

Some improvement has followed treatment with either corticotrophin or cortisone, but there are reports of comparable cases in which little or no objective benefit occurred. There have also been instances of severe relapses following withdrawal of these drugs. Unless the symptoms are disabling and the course rapidly progressive, it would seem wiser to withhold these drugs and advise the patient to seek some light employment which throws no additional strain on the lungs or heart.

Many cases of chronic poisoning are probably recognized late in the disease and at a time when the radiological features are apparently consistent

with advanced fibrosis. The microscopical features of biopsy material obtained from lung lesions at this phase—or indeed from skin lesions 10 or more years after exposure—suggest that the disease is still in an active and partly reversible stage. This is also supported by the reaction which may occur in the lungs following patch testing if strong solutions of beryllium salts are used. In view of these observations, any therapy which is known to have an effect on abnormal sensitivity or has been shown to help the resolution of chronic cellular reactions is worthy of consideration in a progressive case.

In spite of all efforts, many cases pursue a slow and inexorable deterioration punctuated by exacerbations from respiratory infections and, ultimately, from one or more attacks of heart failure. At such times, antibiotics and the usual remedies for congestive cardiac failure may prolong life; at the present time they are the only certain methods of giving relief in this distressing condition. (Jordan, J. W., Drake, C. S., Chronic Beryllium Poisoning: Thorax (British), 13: 69-73, March 1958)

(OccMedDispDiv, BuMed)

* * * * *

ABC Warfare Defense - Four Weeks Course
for Medical Officers

Course #3 - convening 5 January 1959

Location: U. S. Naval Schools Command, Naval Station, Treasure Island, San Francisco, Calif.

Student Clearance Required: SECRET

Reporting Time and Place: Prior to 2200, 4 January 1959, Personnel Office, U. S. Naval Schools Command, Bldg. 28

Course Objectives: This course is designed for experienced active duty Naval Medical officers possessing SECRET security clearance. It will stress the medical aspects of modern warfare and of military peacetime operations, including problems incident to atomic, biological and chemical weapons systems, nuclear propulsion, mass casualties and isotopes programs. Military aspects of the weapons systems and military countermeasures will also be considered so that medical officers may function effectively on a staff and can reasonably assess the medical compromises imposed by the military situation. Outstanding speakers, both military and civilian, will be on the program. The

course will include visits to the Naval Radiological Defense Laboratory and the Naval Biological Laboratory, and will include several practical exercises and drills. Texts will be provided for permanent retention by the students.

Class Quota: 50 (10 spaces reserved for Army and Air Force)

Quota Breakdown: 40 Navy - 30 Medical Corps; 5 Dental Corps;
5 Medical Service Corps

Nominating Bureau: Bureau of Medicine and Surgery

Eligibility: 1. Medical officers: Requests for attendance are invited from Medical officers of the Regular Navy, excluding residents. Requests from Reserve Medical officers with a minimum of 20 months of obligated service remaining may be submitted for consideration, whose attendance would obviously assist them in the performance of their assigned duties.

2. Dental officers: Officers to attend will be selected by the Bureau of Medicine and Surgery.

3. Medical Service Corps: Requests for attendance are invited from Senior Medical Service Corps officers. Preference will be given requests from officers assigned duties on Fleet and/or District Staffs, and Administrative officers of Naval Hospitals.

Interested officers meeting the above eligibility must submit letter request via their Commanding Officers to reach BuMed (Attn: Code 316) prior to 1 November 1958. Appropriate TAD orders will be requested by BuMed for all selected candidates. Travel and per diem expense will be provided from BuMed training funds.

It is anticipated that ABC Warfare Defense Course Number 4 will convene during May 1959. When firm arrangements for this course are completed, another article will appear in the U.S. Naval Medical News Letter. (ProfDiv, BuMed)

* * * * *

Nuclear Nursing Course - A Navy First

On September 3, 1958, the first course of its kind, "Nuclear Nursing," commenced at the Department of Nuclear Medicine, U.S. Naval Medical School, National Naval Medical Center, Bethesda, Md.

Instruction during the course includes theory and laboratory practice in the study of principles underlying radioisotope therapy and care of

mass casualties resulting from nuclear disasters as related to medical diagnosis, treatment, and nursing care of patients.

Establishment of this course for Nurse Corps officers of the Navy is another evidence of the new horizons in scientific fields of study created by the "nuclear age." Advances affecting medical technology during war and peace directly affect the practice of nursing. Nuclear nursing, originated and developed by far-sighted naval medical and nursing personnel, is further recognition of the Navy's progress in the field of nuclear medicine.

Twelve Navy Nurse Corps officers and two Air Force Nurse Corps officers are participating in the course. The Navy Nurse Corps officers who complete the course on 19 December 1958 will be assigned to naval hospitals in clinical radioisotope laboratories, metabolic research units, and other allied disciplines. (Nursing Div, BuMed)

* * * * *

Naval Management and Preventive Medicine Course

The second Naval Medical Management and Preventive Medicine Course for Senior Foreign Medical officers convened at the U. S. Naval Medical School, NNMC, Bethesda, Md., on 2 September 1958.

The courses began with a welcoming address by Rear Admiral B. W. Hogan MC USN, the Surgeon General, who also read a personal letter of greetings from Admiral Arleigh Burke USN, the Chief of Naval Operations.

The Hospital Management Course encompasses an intensive review of modern civilian and military hospital management with on-the-job training in the clinical, personnel, food service, fiscal, supply records, and laboratory departments. The students will visit 8 Naval and civilian hospitals to observe management operations of both large and small facilities. The Preventive Medicine Course is designed to meet the current problems of international medicine and the application of changing techniques to the maintenance of optimal health and welfare among military personnel. Outstanding national and international authorities comprise the teaching staff.

Attending the course are 22 Medical officers representing the Navies of Argentina, Chili, China-Taiwan, Cuba, Ecuador, Germany, Iran, Japan, Korea, Peru, Philippine Islands, and Turkey. (NMS, NNMC, Bethesda)

* * * * *

From the Note Book

1. The Surgeon General of the Navy, Rear Admiral B. W. Hogan MC USN, conducted a 3-day conference with Senior Medical officers of the Navy, September 17-19, 1958, at the National Naval Medical Center, Bethesda, Md.

The conference was organized with the purpose of reviewing and discussing current policies and problems of the Navy Medical Department. (TIO, BuMed)

2. The July-August 1958 issue of "Laboratory Investigation," official Journal of the International Academy of Pathology, is dedicated to Dr. Howard T. Karsner, Medical Research Advisor to the Surgeon General of the Navy. Following a profile by COL J. E. Ash MC USA, and an article of the Institute of Pathology, Western Reserve University, Cleveland, Ohio, are 14 scientific papers published by former associates and assistants of Dr. Karsner. (TIO, BuMed)
3. In the BuMed News Letter, Vol. 32, No. 4, P. 23, dated 22 August 1958, the name of CDR F. H. Howard MC USNR was, through error, included in the names of those having been certified by the American Board of Obstetrics and Gynecology. CDR Howard is Board Qualified. CDR Howard is congratulated for reporting this error to the Bureau of Medicine and Surgery. Editor.
4. Effective 1 September 1958, LCDR J. E. Rasmussen MSC USN assumed additional duty as Assistant for Medical Allied Sciences Officers, Code 35B, Bureau of Medicine and Surgery, vice CAPT K. L. Knight MSC USN (MSC Division, BuMed)
5. CAPT E. L. Caveny MC USN (Ret), Head of the Department of Psychiatry and Neurology at the University of Alabama Medical School, presented the graduation address to Flight Surgeon Class No. 88, graduating on 19 September 1958, at the Naval School of Aviation Medicine, Naval Aviation Medical Center, Pensacola, Fla. (AVDiv, BuMed)
6. A new edition of the booklet, "Immunization Information for International Travel," has been issued by the Public Health Service. (PHS, HEW)
7. Grants and awards totaling almost \$2 million for the training of public health specialists are announced by the Public Health Service. A total of \$1,003,410 was awarded to 231 persons including physicians, engineers, health educators, laboratory workers, dentists, and members of other health professions. These persons will enter colleges and universities throughout the Nation this fall for a year of training in the public health aspects of their professions. (PHS, HEW)
8. An epidemic of histoplasmosis that involved 19 persons in Walworth, Wis., is reported. The organism was isolated from the soil surrounding the house which the patients were building and from the scalene nodes of 2 patients, the incubation periods, relationship between the extent of exposure and illness, the clinical pictures and x-ray findings, and laboratory results are presented. (Ann. Int. Med., August 1958; K. R. Wilcox Jr., M. D., B. A. Waibren, M. D., J. Martin, M. D.)

9. The management of the patient with acne vulgaris is one of the most perplexing and challenging problems that the general practitioner encounters. Recent investigation has shed considerable light on the pathophysiology of the disease. This article discusses the treatment of acne vulgaris. (GP, September 1958; K. W. James, M.D., J. B. Tisserand Jr. M.D.)

10. At the present time, the status of relaxin is very controversial. Although current knowledge is still incomplete, sufficient work has been reported and, perhaps, unfortunately popularized, to warrant a critical evaluation which this report presents. (Am. J. Obst. & Gynec., September 1958; M. L. Stone, M.D., et al)

11. Unilateral multicystic kidney disease is a congenital condition characterized by replacement of normal kidney tissue by multiple cysts of varying size held together loosely by connective tissue. The condition should not be confused with the other cystic lesions of the kidney and should be classified as a separate entity because it is apparently always unilateral and has a favorable prognosis. (J. Pediat., September 1958; A. J. Coppridge, M.D., R. K. Ratliff, M.D.)

12. A technique of extraperitoneal cesarian section, developed at Woman's Hospital Division, St. Luke's Hospital, New York, is described. The simplicity and ease of execution of this technique is based upon a thorough working knowledge of the relationships of the fascial and peritoneal reflections overlying the lower uterine segment at, or near, term. (Surg. Gynec. & Obst., September 1958; J. P. Marr, M.D., B. N. Nathanson, M.D.)

13. This account describes the medical and scientific investigation in a case in which a man was convicted of murdering his wife by injections of insulin. So far as the authors know, this is the first occasion in which such a charge has been substantiated and also the first in which insulin has been demonstrated in human tissue, other than the pancreas, after death. (Brit. M. J., 23 August 1958; V. J. Birkinshaw, et al)

14. Thirty cases of tuberculoma of the lung, occurring chiefly in patients between 20 and 40 years of age, are reviewed. An account is given of the clinical history, x-ray, and pathologic findings in the series in an attempt to analyze the origin and development of tuberculomas. (Am. Rev. Tuberc., September 1958; S. Sochocky)

15. The roentgen appearance of the juvenile unicameral bone cyst epitomizes the static, benign cystic lesion of bone. Its diameter is no greater than that of the epiphyseal plate and its shape is that of an elongated truncated cone with the base at the epiphyseal plate, in contrast to the round or oval shape of the bone tumor or aneurysmal bone cyst. (Am. J. Roentgenol., September 1958; G. S. Lodwick)

16. Gallstone ileus may be defined as a mechanical intestinal obstruction due to occlusion of the lumen of the bowel by a biliary calculus. This type of intestinal obstruction is unusual, has a high mortality rate, and accounts for approximately 1.5% of all forms of mechanical intestinal obstruction. (Am. J. Surg., September 1958; F. A. Rogers, M.D., R. Carter, M.D.)

17. This article analyzes the incidence of leukemia and the lymphomas in different populations. The importance of radiation as an etiologic factor in the occurrence of the different forms of these diseases is considered. (Blood, September 1958; E. E. Schwartz, A. C. Upton)

* * * * *

BUMED INSTRUCTION 6010.1B

3 September 1958

From: Chief, Bureau of Medicine and Surgery

To: Commanding Officers, Naval Hospitals

Subj: Reduction in length of stay of military patients in hospitals

- Ref:
- (a) Art. C-5311A, BuPers Manual
 - (b) BuPersInst 1301.23A, Subj: Instructions regarding hospitalized officers
 - (c) BuPersInst 1850.2, Subj: Disposition of personnel awaiting final action on disability retirement proceedings
 - (d) Art. C-5205, BuPers Manual
 - (e) BuPersInst 1306.50A, Subj: Transfer and disposition of enlisted personnel requiring hospitalization
 - (f) BuMedInst 1910.2A, Subj: Disposition of enlisted and inducted members by reason of physical disability or military unfitness; standards and procedures for (NOTAL)
 - (g) Para. 7018, MarCorps Manual, Vol. I
 - (h) MarCorps Order 6010.1A, Subj: Responsibility for administration of patients
 - (i) BuMedInst 1301.2, Subj: Marine Corps officers found fit for duty by boards of medical survey; disposition of (NOTAL)
 - (j) MarCorps Order 1900.3A, Subj: Marine Corps personnel awaiting final action of physical evaluation board proceedings

Encl: (1) Average number of sick days - military patient in naval hospitals

This instruction promulgates policy and objectives concerning length of stay of military patients in naval hospitals and disseminates information contained in enclosure (1) depicting average number of sick days. BuMed Inst. 6010.1A is canceled.

BUMED NOTICE 6310

4 September 1958

From: Chief, Bureau of Medicine and Surgery
To: Ships and Stations Having Medical Personnel

Subj: CH-1 to BuMed Instruction 6310.4, Subj: Morbidity Report,
NavMed 1390 (Med-6310-2); and Special Epidemiological Reports
(Med-6200-2)

Encl: (1) Revised page 1 and replacement page 2 to BuMed Instruction
6310.4

This notice eliminates reporting requirements for certain activities. Effective 1 October 1958, BuMed Instruction 6310.4 is canceled for:

- a. Naval Reserve Training Centers
- b. Marine Corps Reserve Training Centers
- c. Naval and Marine Corps Reserve Training Centers
- d. Marine Air Reserve Training Detachments
- e. Navy Recruiting Stations and Offices of Naval Officer Procurement
- f. Marine Corps Recruiting Stations

Change. All other addressees shall substitute enclosure (1) of this notice for pages 1 and 2 of the instruction.

* * * * *

BUMED NOTICE 6230

19 September 1958

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: CH-1 to BuMed Instruction 6230.8C of 31 July 1958, Subj: Polio-
myelitis vaccine; use of

Ref: (a) NMMO System Instruction 4442.4B

This notice advises of changes in dosage information, and in procurement and funding procedures which have been superseded by reference (a).

* * * * *



RESERVE SECTION

Reserve Medical Officers Selected for Rear Admiral

Five inactive Reserve Medical Corps Captains residing in the First, Third, Sixth, Ninth, and Twelfth Naval Districts have been selected for Rear Admiral, Medical Corps, U. S. Naval Reserve. They are:

Captain Joseph S. Barr (MC) USNR
240 Greenwood Street
Newton 59, Mass.

Captain Francis J. Braceland (MC) USNR
The Institute of Living
200 Retreat Avenue
Hartford 2, Conn.

Captain Robert A. Ross (MC) USNR
223 Hillcrest Drive
Chapel Hill, N. C.

Captain Wendell G. Scott (MC) USNR
50 Fair Oaks
St. Louis 17, Mo.

Captain William L. Rogers (MC) USNR
37 Presidio Avenue
San Francisco, Calif.

Each officer has been extremely active in the Naval Reserve Program and has given freely of his time and talent for the betterment of naval medicine and the U. S. Navy as a whole.

Doctor Barr is an honorary consultant to the Surgeon General and consultant in orthopedics at the U. S. Naval Hospital, Chelsea, Mass.; Doctor Braceland is an honorary consultant to the Surgeon General and consultant in psychiatry to the Bureau of Medicine and Surgery; Doctor Ross is Commandant's Representative at the University of North Carolina School of Medicine, Chapel Hill; Doctor Scott is honorary consultant to the Surgeon General and Commanding Officer, Naval Reserve Medical Company 9-1, St. Louis, Mo.; and Doctor Rogers is honorary consultant to the Surgeon

General, consultant in thoracic surgery at the U. S. Naval Hospital, Oakland, Calif., and Commandant's Representative at Stanford University School of Medicine, San Francisco, Calif.

A salute and congratulations to the new admirals on their honored achievement.

* * * * *

Research Reserve Seminar in Submarine
and Diving Medicine

Convening at the U. S. Naval Medical Research Laboratory, New London, Conn., this 14-day seminar begins 27 October 1958, and will present information concerning scientific and operational problems related to submarine and diving medicine.

Quotas have been authorized for the First, Third, Fourth, Fifth, Sixth, Eighth, and Ninth Naval Districts. Priority for attendance will be given in the following order: members of the Research Reserve Program; Medical Corps officers and Medical Service Corps officers engaged in allied medical research; and Submariners. Secret security clearance is required.

* * * * *

Increase in Retirement Pay
Provided by Pay Raise

The following table reprinted from the August 1958 edition of the Naval Reservist reflects increase in retirement pay for nondisability retirement after 20 years of satisfactory Federal service.

Should you wish to estimate your retirement pay more accurately, the following formula applies:

1. Estimate number of retirement points earned after 20 years.
2. Divide this figure by 360.
3. Multiply this result by 2-1/2%.
4. Times the applicable base pay at time of retirement.

Example: $\frac{1620}{360} \times 2-1/2\% \times \$860 = \$100.00$ per month after 20 years' service and attains age 60.

Naval Reserve Monthly Retirement Pay Under Current Pay Scale

monthly
retirement
pay

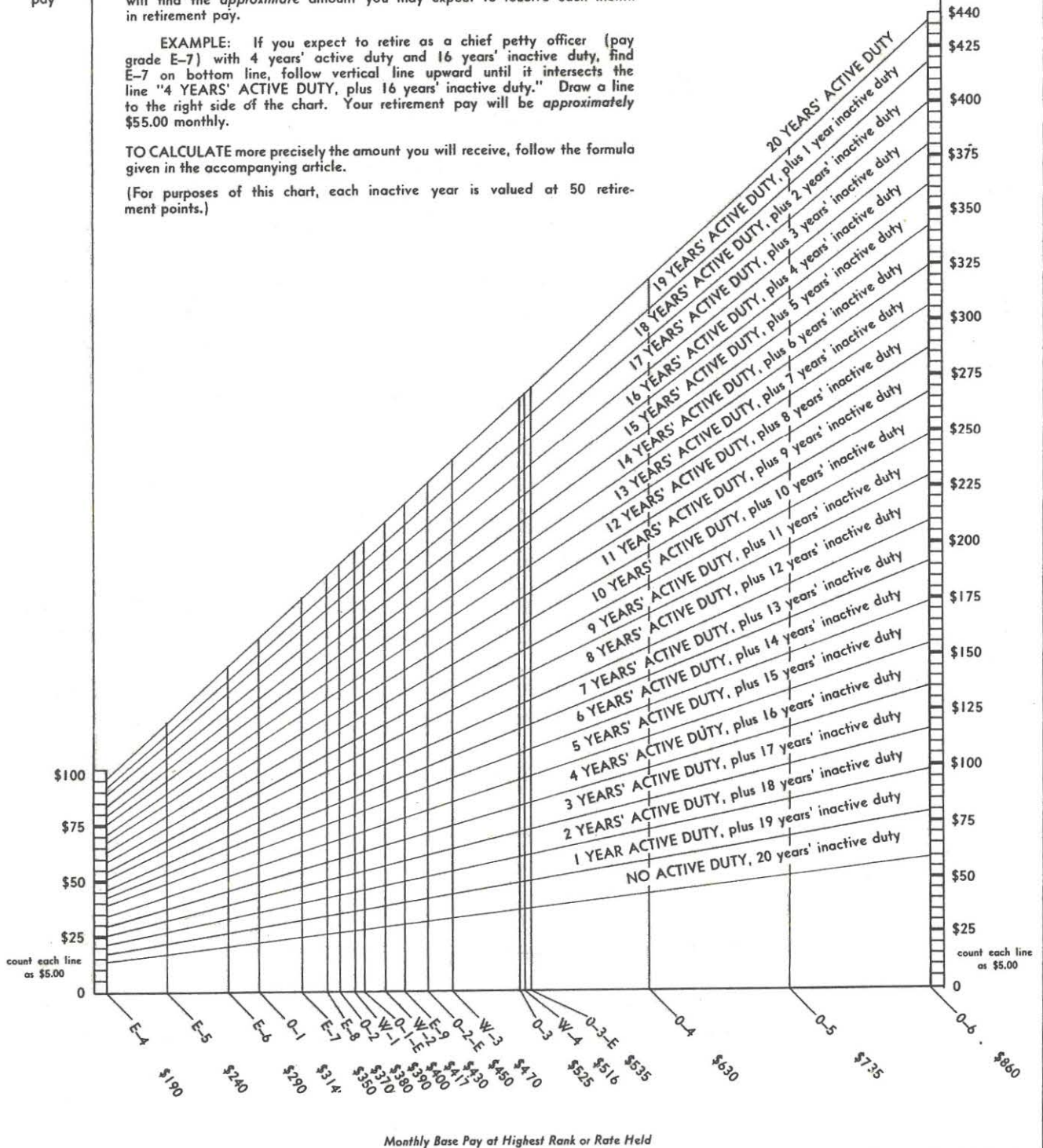
TO DETERMINE the approximate amount of retirement pay you will receive, read across the bottom of the chart until you come to your estimated pay grade after 20 years of service. Then follow the vertical line upward until you reach the slanting line which indicates the number of years of active and inactive duty you will have served. Then draw a horizontal line straight across to the right side of the chart and you will find the approximate amount you may expect to receive each month in retirement pay.

EXAMPLE: If you expect to retire as a chief petty officer (pay grade E-7) with 4 years' active duty and 16 years' inactive duty, find E-7 on bottom line, follow vertical line upward until it intersects the line "4 YEARS' ACTIVE DUTY, plus 16 years' inactive duty." Draw a line to the right side of the chart. Your retirement pay will be approximately \$55.00 monthly.

TO CALCULATE more precisely the amount you will receive, follow the formula given in the accompanying article.

(For purposes of this chart, each inactive year is valued at 50 retirement points.)

monthly
retirement
pay



DENTAL**SECTION**

Open Letter from Chief Dental Division
to All Navy Dental Personnel

"This letter is to express my sincere appreciation to all of you who wholeheartedly supported the commemoration of the Forty-Sixth Anniversary of the founding of the U. S. Navy Dental Corps on August 22, 1958. Many excellent reports of your successful celebrations and exercises have reached this Bureau through copies of civilian newspapers and publications of ships and stations. The articles in these publications were well prepared and presented in good taste. They should serve to enhance public respect for our profession and for the Navy. I am confident that the birthday celebrations contributed significantly to the solidarity and esprit de corps of our own organization.

It has been the custom at certain times in the past for the Chief of the Dental Division to send individual letters of appreciation to the heads of dental facilities who sponsored commemorative activities on the anniversary of the Dental Corps. I am happy to report that the ceremonies, receptions, and news articles were so numerous this year that individual recognition is not practicable. I am pleased that your enthusiastic support in recognizing the anniversary of our Corps has made it necessary for me to use an open letter to express my appreciation to you.

/s/ R. W. MALONE"

* * * * *

ADA President Elect - Honorary Consultant
to The Surgeon General

The Secretary of the Navy has approved the appointment of Percy T. Phillips, D. D. S., President-Elect, American Dental Association, an Honorary Civilian Consultant to the Surgeon General of the Navy.

* * * * *

The Tooth Brush Habit

In a recent study of the tooth brushing habits of young male adults which was conducted by the Dental Research Facility, U. S. Naval Training Center, Bainbridge, Md., it was noted that the total rate of dental caries, as revealed by the number of DMF (diseased, missing, and filled) teeth, showed little relationship to the frequency of tooth brushing. However, a marked relationship was demonstrated to factors which indicate neglect, such as the number of unrestored carious surfaces on teeth, depth of cavities, the number of teeth to be extracted, and poor oral hygiene.

Evidence of dental care (i. e., the number of restored teeth), including good oral hygiene, showed a direct relationship to good tooth brushing habits. It was apparent that the interest in home care is associated with an interest in obtaining professional dental care.

The association between the state of dental health and tooth brushing habits suggests that those who neglect their teeth at home, as evidenced by poor oral hygiene, also neglect needed dental care. (Survey of Dental Health of Naval Recruit III)

* * * * *



PREVENTIVE MEDICINE SECTION

Fatal Accidents Among Women

Accidents cause about 23,000 deaths a year in the United States among women at ages 15 and over; of these more than 10,000 occur before age 65. In the age range, 15-64 years, accidental injuries take twice as many female lives as diabetes and about 4 times as many as tuberculosis.

Far outranking all other types of mishaps, motor vehicle accidents were responsible for about three-fifths of the fatal injuries among white women under 65 years of age in 1954-55. The large majority of these women were occupants of a motor vehicle either as passengers or drivers at the time they were injured. All other types of transportation combined accounted for less than 5% of the number killed in motor vehicle accidents with aircraft taking a somewhat greater death toll than railroads or water transportation.

Accidents in and about the home in 1954-55 were responsible for only one-fifth of the fatal injuries among white women at ages 15-64—a surprisingly low proportion considering the large amount of time that these women spend in the home. Most of the other fatal accidents occurred on streets and highways, in places used for recreation and sports, and in public buildings, hospitals, and other resident institutions. Very few women lose their lives in industrial places. In the entire country, only about 25 such deaths occur in the course of a year among white women at the main working ages which speaks well for the safety program of American industry.

For all leading types of accidents among white women combined, the death rate in 1954-55 decreased from 20.8 per 100,000 at ages 15-19 to 13.3 at ages 25-34, but rose steadily with advance in age to 31.1 per 100,000 at 55-64 years. Motor vehicle accidents accounted for the greater part of the mortality at every age period. At 15-19 years, four out of every five of the fatalities were due to motor vehicle mishaps. The proportion decreased progressively as age increased, but even at ages 55-64, it was nearly one-half.

The actual death rates from motor vehicle accidents showed a somewhat different age picture. The highest rate from this cause was recorded at ages 15-19, but the mortality was almost as high at 55-64 years. In contrast, the death rates from the next leading types of accidents—falls and fires—begin at a low point in adolescence and rise with advance in age. Accidental falls, in particular, are concentrated at the older ages. In fact, up to midlife the number of white women killed by accidental falls is less than the total who die in fires, but at ages 55-64, falls take 3 times as many lives as fires. Drowning, gas poisoning, and firearm accidents, on the other hand, take a somewhat greater toll of life at ages 15-19 than at the older ages.

The facts emphasize the need to extend and strengthen the safety education program for women. The deplorably high loss of life among them has shown no tendency to abate in recent years. American women can do much to promote safety for themselves and their families by making their homes as free from hazards as possible, by careful supervision of children in their charge, and by inculcating an attitude of safety in growing youngsters. (Fatal Accidents Among Women: Metropolitan Life Insurance Company Statistical Bulletin, 39: 9-11, July 1958)

* * * * *

Meningitis Due to Mima Polymorpha

A case of meningitis due to *Mima polymorpha* in a 19-year old airman is described and its striking clinical similarity to meningococcal meningitis is emphasized. *M. polymorpha* is a Gram-negative organism which closely resembles *Neisseria*. Identification is based upon its pleomorphic activity

in different media, negative biochemical and carbohydrate fermentation studies, a tendency to retain portions of the primary dye, and a positive catalase reaction. The oxidase reaction is variable.

In both meningococcal and *M. polymorpha* meningitis, a generalized petechial rash is commonly present, and Gram-negative diplococci are characteristically found in the skin lesions, cerebrospinal fluid, or blood. Therefore, the correct diagnosis depends upon routine bacteriological procedures.

Successful therapy of *M. polymorpha* meningitis has been accomplished by the use of penicillin and/or sulfonamides. A total of six cases due to this organism are now recorded in the literature. (Fred, H. L., et al, Meningitis Due to *Mima Polymorpha*: Arch Int. Med., 102: 204-206, August 1958)

* * * * *

Association of Bats with Histoplasmosis

Histoplasma capsulatum was isolated from 50 of 105 soil samples from six collections made between October 1956 and September 1957 on the premises where a family epidemic of histoplasmosis had occurred. Chickens, often associated with the saprophytic growth of this fungus, had not been kept on the premises for many years.

Histoplasma was isolated from 45 of 66 soil specimens (68%) taken adjacent to, or within, 5 feet of the foundation wall of the house and from only 2 of 29 (6.8%) taken 6 to 18 feet from the house. Three of ten samples taken near a doghouse were also positive.

The house sheltered a colony of the brown, or house, bat (*Eptesicus fuscus*), and bat dung was found adjacent to the foundation. The presence of bats is the apparent factor responsible for the constant saprophytic infestation of soil on these premises with *H. capsulatum*.

The house bat inhabits suitable shelters in towns and cities as well as in rural areas, and may be the ecologic factor responsible for the presence of *Histoplasma*, prevalent histoplasmin sensitivity, and clinical histoplasmosis in observed instances of urban histoplasmosis in towns and cities where reasons for the occurrence of these phenomena have not yet been determined. (Emmons, C. W., Ph. D., Association of Bats with Histoplasmosis: Publ Health Rep., 73: 590-595, July 1958)

* * * * *

Use of funds for printing this publication has been approved by the Director of the Bureau of the Budget 19 June 1958)

* * * * *

Navy Food Service - Food Preparation
To Stuff or Not to Stuff Turkeys

A word of caution is in order in Navy Turkey Talk this Thanksgiving. Foodborne infections have not passed into oblivion with the end of the summer heat. On the contrary, there is considerable danger of bringing infection into the Thanksgiving mess if sanitary handling, refrigerated stowage, and proper galley cooking times are not carefully watched.

Two foods commonly appearing on the Thanksgiving menu make excellent breeding grounds for food-borne infection—turkey and turkey stuffing or dressing. For this reason, the practice of stuffing turkeys before roasting may well be questioned in Navy food operations. Indeed, the directions given for roasting turkeys by the Navy Recipe Service (Card No. L16, Note #3) specify roasting birds unstuffed when preparing for 200 or more rations. There is more reason for this practice than the actual labor and time saving involved.

Recent research has shown that there is little margin of safety against food infection if large turkeys are roasted with stuffed cavities. With large birds, oven heat does not penetrate to the center sufficiently rapidly and thoroughly to kill the organisms which cause food infection. Stuffings made with cornbread, eggs, giblets, or oysters as ingredients are potentially dangerous mixtures for food infection and should be carefully cooked and served promptly.

A safe plan is to bake all stuffings in separate, greased pans immediately after preparation if they are to accompany turkeys weighing over 18 pounds. Either afloat or ashore, messes may be receiving stores of turkeys weighing this much or more. It is stressed that commissarymen take note of this food infection control measure. (Navy Food Service, U.S. Navy Subsistence Office)

* * * * *

Fire Prevention Week

On August 8, 1958, the President issued the following proclamation:

"Whereas, fire-prevention practices by the American people can avert **much** human suffering and save great loss of property; and

Whereas, each citizen should contribute wholeheartedly to effective fire-prevention work urgently needed in every community of our land:

Now, therefore, I, DWIGHT D. EISENHOWER, President of the United States of America, do hereby designate the week beginning October 5, 1958, as Fire Prevention Week.

I call upon the people to promote programs for the prevention and control of fires; and I urge State and local governments, the American

National Red Cross, the Chamber of Commerce of the United States, and business, labor, and farm organizations, as well as schools, civic groups, and public-information agencies, to share actively in observing Fire Prevention Week. I also direct the appropriate agencies of the Federal Government to assist in this national effort to reduce the loss of life and property resulting from fires."

(Federal Fire Council News Letter, August 1958)

* * * * *

Policy

The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

* * * * *

POSTAGE AND FEES PAID
NAVY DEPARTMENT

DEPARTMENT OF THE NAVY
U. S. NAVAL MEDICAL SCHOOL
NATIONAL NAVAL MEDICAL CENTER
BETHESDA 14, MARYLAND
OFFICIAL BUSINESS
Permit No. 1048